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# A REVIEW OF REGIONAL DEVELOPMENT THEORY

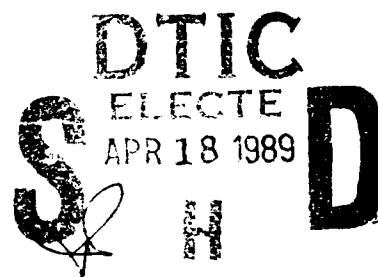
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## A Review of Regional Development Theory

Much effort has been expended in attempting to understand how economic development occurs. Too often those efforts have focused on the national level and employed highly aggregated statistical information. That aggregation has often obscured the vital factors and relationships that have been quite important for the development of a country. Focusing on a less aggregated source of data, at the regional level, is a potentially more fruitful approach for those interested in understanding the development process.

On reviewing the literature on economic development I found no recent works that updated and summarized theories that apply specifically to regions. This note is an attempt to fill that gap by reviewing the theoretical debate on how economic development or stagnation occurs in one area that is part of a larger, multiregional entity. I intend to identify and describe the basic aspects of important theories of regional development in order to better recognize cause and effect relationships that may otherwise be less understandable in the study of a national economy.

A perusal of the literature on regional economic development reveals that the process is not clearly understood. Two notable reasons for a lack of clarity are the complexity of the development process and the need for much more empirical analysis. Economic change results from intricate interaction of activities within a region, between regions, and with other countries. Inability to perceive the entire complex process and formulate perceptive questions about it contributed to the lack of insightful answers about development.

Failures of developed countries to identify all important factors and completely record their development in comparable terms have also, in many cases, severely limited data availability and the construction of testable models. This, in turn, led early theorists to attempt to explain regional development in terms of its single most important cause, with other factors relegated to insignificance. The toil of measuring, modeling, and testing potentially pertinent motivators of the process continue to inhibit analysts. Notwithstanding these problems, theorists have uncovered important cause and effect relationships that seem to influence regional development or stagnation. The key aspects of their formulations will be reviewed in this note.<sup>1</sup>

Since early understandings of development often emphasized a single important cause or mechanism, I begin this theory review by summarizing three hypotheses which focus on somewhat different primary causes of regional development. They include the Heckscher-Ohlin application of the neoclassical growth model, the export base hypothesis, and the growth pole mechanism. These will be followed by a synopsis of the more comprehensive conception of progress proposed by W. W. Rostow, a perception of regional development in stages. Next I will treat the theoretical propositions of Gunnar Myrdal and Albert O. Hirschman, whose ideas have been particularly important in understanding regional backwardness. To round out the chapter with an increasingly prominent view on backwardness, I will review hypotheses on internal colonialism.

### Heckscher-Ohlin Implications

Neoclassical economists often identified trade as the motor of development in a region of a country. The Heckscher-Ohlin hypothesis is one important neoclassical example.<sup>2</sup> It holds that "in each region ... commodities containing a large proportion of dear factors are imported, and those containing a large proportion of cheap factors are exported."<sup>3</sup> From this it follows that each region tends to specialize in producing commodities incorporating relatively large quantities of productive inputs which are relatively abundant in that locality.<sup>4</sup>

This suggests a number of things about regional development. First, the beginning of development is heavily dependent on the endowment of exploitable natural resources within the locality.<sup>5</sup> From this it follows that the relative abundance of capital or labor is less important in determining a region's initial comparative advantage in trade. However, as time passes and trade expands, the levels of capital and labor in an underdeveloped region, relative to capital and labor in more developed regions, become more important in influencing industrial development. As some natural resources are eventually depleted or become too costly to exploit and as capital and labor migrate in response to regional factor price differentials, regional comparative advantage will tend to change.<sup>6</sup> Although factor movements tend to equalize prices among regions, some factor price differentials may widen as factors move, bolstering trade even more. To the extent transfer relations improve and economies of large-scale production are achieved, development will ensue.<sup>7</sup> As the combined real incomes of the trading regions rise, commercial interaction will tend to increase



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further.<sup>5</sup> Throughout this time, locations containing production facilities with greater comparative advantage will develop more rapidly. In the process, other regions may lose their parts of these industries.<sup>9</sup> Nevertheless, such losses will be temporary and in the longer term real wages and development levels will tend to converge.<sup>10</sup>

The factors affecting growth and the process posited by the Heckscher-Ohlin hypothesis are sketchy. They do not identify an initial impetus to growth but assume that as trade increases between regions of a country and with other countries growth follows. In a real sense, the developmental aspects of trade suggested above are less an explicit model than implicit extrapolations from trade theory. Even so, those inferences are of value in explaining regional development, since interregional and international trade are shown to have the potential to induce growth in less developed regions.

The hypothesis highlights the importance of exploitable resources in the earliest stages of development and conversely suggests the difficulty facing a backward region without such assets or other locational advantages.<sup>11</sup> It also emphasizes the necessity for efficient and relatively inexpensive transportation and effective communication to allow economic actors in the regional economy to marshal its capital and labor resources to exploit changes in relative prices. While it predicts that as the country experiences economic growth, regional development and adjustment to national markets will be along interindustry lines, empirical evidence suggests intra-industry adjustment is more important for increased efficiency and growth.<sup>12</sup>

### Export Base Hypothesis

A popular understanding of the way trade may produce growth is expressed with the idea of an "export base."<sup>13</sup> Richardson's succinct definition of this concept "states that the regional growth rate is a function of regional export performance."<sup>14</sup> The study of the effects of export performance on growth has many contributors<sup>15</sup> but North is probably the best known in the US for his work on the subject.<sup>16</sup>

North's formulation of the hypothesis assumes that development around a common export base defines an economic region and ties together the outcomes of the area. The export base is so important because of its significant influence on the level of income and the amount of residentiary, secondary, and tertiary activities that develop in a region. In addition, since the success of the export base determines the rate of growth of a region, to understand the growth, one must examine locational factors that enabled staple commodities<sup>17</sup> to obtain their key position in trade. North found that a newly settled region will tend to increase its dependence on staples since its residents and various government agencies will tend to work to reduce processing and transfer costs and outside capitalists will tend to reinvest in established staples. Importantly, the theory does not rely on growth of an export base of finished manufactures for continued regional progress. It assumes that a significant amount of secondary and tertiary industrial activity tends to develop in proportion to the success of the export base. As demand for a region's exports increases or costs decrease, growth tends to be uneven as investment is induced throughout the area. That investment will come



from indigenous savings and earnings of investors from outside who support new products, initially to satisfy local demand but later also for export. As time passes, the diversity of production will become so great that the staple base is less distinguishable. Factor mobility will tend to increase and per capita income to equalize between regions.<sup>15</sup>

In support of this theory, empirical tests confirm that a region's export base can be a powerful force for growth.<sup>19</sup> Analysts also find its multiplier feature appealing. One reason is its use to estimate the magnitude of regional economic activity from G.N.P., a datum often much more readily available than regional data. However, focusing on the export base also has shortcomings. The hypothesis is preoccupied with export considerations and neglects the impact of regional size and other factors affecting regional income.<sup>20</sup> Another shortcoming is its emphasis on new settlements, while neglecting less developed, long settled regions.<sup>21</sup> In addition, defining and measuring the export base is extremely difficult.<sup>22</sup> Export base theory emphasizes some benefits sometimes associated with growth poles but neglects the negative effects also associated with points of growth.<sup>23</sup> In sum, although research confirms that export base considerations are useful and even necessary as part of a comprehensive theory of regional development, they are insufficient.<sup>24</sup> The theory does not identify a growth starter and explains only part of the growth process by itself.

### Growth Poles

Rather than relying on market forces to fully explain regional economic development, growth pole theory emphasizes spatial aspects of the process. After studying relatively backward countries, Perroux developed the view that "growth does not appear everywhere at the same time; it becomes manifest at points or poles of growth, with variable intensity; it spreads through different channels, with variable terminal effects on the whole of the economy."<sup>25</sup>

The theory states that poles or foci of economic activity exert centrifugal and centripetal forces producing fields which interact with other force fields of other economic foci.<sup>26</sup> Each "polarized region" has parts which complement and support other parts and exchange more goods and services with a dominant intraregional urban center or pole than with other regions.<sup>27</sup> In the dominant urban center there will tend to be a "propulsive" oligopolistic firm or industry that greatly influences suppliers and customers making the agglomeration to which it belongs the pole of its region.<sup>28</sup> As the propulsive industry grows, its growth fosters increases in investment, employment, and increased payments to factors of production. This in turn will generate further growth in the region.<sup>29</sup> Stated in a few words, growth pole theory posits that economic development begins with and continues to be motivated by large industrial ventures.

Similar ideas of growth spreading from one area to others have been recognized by a number of development analysts. Myrdal spoke of effects that emanated from "centers of economic expansion"<sup>30</sup> and Hirschman spoke about effects of "growing points."<sup>31</sup> Although most

discussants identify growth poles with urban-industrial centers, Friedmann also expressed similar ideas for broader areas with the terms "core" and "periphery."<sup>32</sup> Burns built on the general concept and differentiated even further with the terms "integrated core," "integrated periphery," and "unintegrated hinterland" to describe cyclical aspects of spreading growth.<sup>33</sup>

Evidence does not fully support the central proposition of the basic growth pole concept, that propulsive firms or industries cause other enterprises to develop.<sup>34</sup> Even if support were unambiguous, this theoretical formulation tells us very little about the development process. The growth pole idea only predicts that once dynamic growth has begun it will tend to continue. Basic questions remain. How does growth begin and sustain itself? The failure to answer these and other questions severely limits the utility of the growth pole concept. Like the previous two perspectives on growth, this hypothesis of development is incomplete. However, it should probably be considered in a general form in any comprehensive theory of regional development. The impact of growth centers in the process of development is much better understood within the context of comprehensive regional economic development theories and will be discussed further below, with the ideas of Hirschman and Myrdal.

#### Development in Stages

One theory that sparked a great deal of interest views the process of economic development in stages of structural change that follow the

introduction of new technology or the emergence of entrepreneurial talent. The changes in technology or talent are thought to originate within a region and so neither interregional nor international trade is considered the impetus for growth.<sup>35</sup>

W. W. Rostow's conception of five stages of growth for each region or country is one of the best known. They are (first) the traditional society, (second) establishing the preconditions for take-off, (third) take-off, (fourth) the drive to maturity, (fifth) the age of high mass consumption.<sup>36</sup>

According to Rostow, the first stage of development begins in a traditional society where people are primarily employed in agricultural production for personal consumption. Traditional technology is used and there is general antipathy toward modernization. The social structure is rigid and not motivated toward economic structural change.

Preconditions for takeoff are established over several decades as people start to believe that economic progress is possible and as education spreads to a greater percentage of people. Enterprising people begin to favor economic changes and seek modernization by increasing the rate of productive investment and by increasing their influence in the community. Institutions for mobilizing financial capital are organized. People begin to apply modern science to the production process and agriculture, the extractive industries, transportation and communications are improved. Although most of society remains in the traditional mode, internal and external trade is more widespread. Some manufacturing companies become established but absolute and per capita output grow slowly. At some point the take-off stage is reached.

Take-off occurs when widespread resistance to modernization is overcome. Technology or political action provide a stimulus to the economy. Growth takes place throughout the region and it comes to be expected and encouraged by political entities. Agricultural labor declines from about 75 to about 40 percent of the work force.<sup>37</sup> In this "decade or two" the society and economy are changed so that a steady rate of growth can be maintained.<sup>38</sup> Rostow view associates take-off with "a rise in the rate of productive investment ... to over 10 percent of [regional] income," the "development of one or more substantial manufacturing sectors, with a high rate of growth," and the "existence or quick emergence of a political, social and institutional framework" that promotes modern economic growth.<sup>39</sup> Regions that have not gone beyond the first three stages are usually referred to as underdeveloped or less developed.

Once take-off is achieved the economy drives to maturity. During this phase 10 to 20 percent of regional income is invested. The adoption of scientific and technical advances in industry are felt throughout the economy, increasing productivity. The proportion of the labor force employed in agriculture continues to decline to about 20 percent or less.<sup>40</sup> Production is quite diversified and new leading sectors emerge. Growth pervades the production structure as the economy experiences a long period of sometimes irregular progress. Maturity is reached "when a society has effectively applied the range of (then) modern technology to the bulk of its resources."<sup>41</sup>

Eventually the age of high mass consumption is reached. One of its characteristics is the relative slowness of structural change. In this stage a relatively large proportion of production comes from

consumer goods industries where new technology has become very important. Although a high level of goods production continues, the services sector expands greatly.<sup>42</sup>

Rostow's ideas have received large amounts of support and criticism.<sup>43</sup> Many critics look for specific indicators that delineate the beginning and end of each stage and are always and everywhere present as regions or countries develop. However, Rostow did not seem to intend such stringency. He held, that in the complexity of the real world, aspects of preceding and succeeding stages may overlap<sup>44</sup> or phase into each other.<sup>45</sup> Rostow associated a major role in growth to leading sectors. His description of the way those sectors motivate growth brings to mind similar features of growth poles.<sup>46</sup> I believe his recognition of the importance of human initiative or "ideas, attitudes, and aspirations" as a base for modern development is an important feature.<sup>47</sup> About some points Rostow is very specific, while on others he is much more general. The fact remains that his relatively detailed model is important because it provided an analytical framework that identifies factors that have been accepted as crucial in the process of growth. Although his description of development is not as verifiable or absolute as many would like, it identifies general parameters that provide useful first approximations. Therefore, I believe his work should be considered a major contribution to the field.<sup>48</sup>

### Myrdal's Picture of Circular and Cumulative Causation

The most widely known writer on the theory of less developed regions is probably Gunnar Myrdal.<sup>49</sup> In studying the ways regions develop or fall behind others, Myrdal found backward regions caught in what appeared to be a "vicious circle."<sup>50</sup> Changes in an economy didn't normally "call forth countervailing changes but ... supporting changes, which move the system in the same direction as the first change but much further. Because of such circular causation a social process tends to become cumulative and often to gather speed at an accelerating rate."<sup>51</sup> As a result, in disagreement with neoclassical theory, Myrdal held that economic systems do not tend toward an equilibrium but "the play of the forces in the market normally tends to increase, rather than to decrease, the inequalities between regions."<sup>52</sup>

Myrdal associated the beginnings of growth with locational advantages and felt increasing internal and external advantages would allow advantaged regions to continue to remain ahead of others.<sup>53</sup> While some regions grew, others tended to experience "relative stagnation or regression" due to "backwash effects."<sup>54</sup>

Myrdal also found "centrifugal 'spread effects' of expansionary momentum from the centers of economic expansion to other regions."<sup>55</sup> Unfortunately, since the strength of spread effects is dependent on the level of development already achieved by a region, spread effects in rather backward regions may be insufficient to overcome backwash effects.<sup>56</sup> On one hand, he noted that once Western European countries began to develop they tended to initiate policies to achieve greater regional equality, supporting spread effects. On the other hand, he

thought that in less developed countries, where market forces had "been given freer play," backwash effects would tend to prevail.<sup>57</sup>

Empirical analysis has provided significant support for key explanatory factors of Myrdal's theory. For one, growth tends to be cumulative in places that have somehow been able to grow more rapidly than others.<sup>58</sup> Backwash effects,<sup>59</sup> linkages to more advanced areas, and spread effects<sup>60</sup> seem to be important in explaining differential development. Evidence also supports the idea that backward but developing countries experience increasing regional per capita income disparity. But as they achieve greater development there seems to be increasing convergence, which is not emphasized by Myrdal.<sup>61</sup> Evidence suggests diminishing returns to public investment in aiding development of poor regions<sup>62</sup> and contradicts the idea that the operation of the market mechanism will retard the development of a backward region.<sup>63</sup> However, these contradictions do not strike at the heart of Myrdal's theory.

Myrdal's picture of regional development predicts that if one region of a country starts to develop before others in that country, it has a high probability of growing faster and becoming much more productive than its competitors. However, development for those regions that have fallen behind will be much slower. In fact, regions in market oriented, less developed countries would most probably not catch up with the more advanced regions but fall farther and farther behind. This is a scenario that is somewhat similar to ideas incorporated in the "internal colonialism" model to be discussed below.



### Hirschman's Vision of Regional Development

In 1957 independent works by Myrdal<sup>64</sup> and Hirschman<sup>65</sup> were published that came to many of the same conclusions about regional development and underdevelopment. Since that time, they have often been mentioned together when income inequality among developing regions is discussed. However, Hirschman had a slightly different emphasis and came to some different conclusions about the prospects for the development of backward regions.

Like Myrdal and others,<sup>66</sup> Hirschman recognized that development in a region can be retarded "by a series of 'interlocking vicious circles'."<sup>67</sup> But Hirschman believed that once development has begun, "powerful forces make for a spatial concentration of economic growth around the initial starting points"<sup>68</sup> and that "the circle is likely to become an upward spiral as all the prerequisites and conditions for development are brought into being."<sup>69</sup>

Hirschman found that if an economy is to achieve higher levels of income for its citizens, "growing points" or "growth poles" must emerge.<sup>70</sup> Therefore, the spatial distribution of economic development will be geographically uneven within a country and progressive and traditional production may even take place side by side. Growth in one place will cause "pressures, tensions, and compulsions toward growth at subsequent points." However the tendency for growth not to spread quickly but "round itself out ... along clearly marked geographic lines" within growing points results in growing disparity between progressive and backward regions, or "dualism."<sup>71</sup>

Successful groups of people tend to exaggerate their worth over other groups or regions. As a consequence, they almost force themselves to continue to be successful, trying to live up to their image as hard workers.<sup>72</sup> "To the extent that this happens, a climate particularly favorable to further growth will actually come into existence in the sectors or regions that have pulled ahead, and this will confirm the economic operators in their preference for these regions and make it somewhat less irrational."<sup>73</sup> In response, less developed groups or regions try to challenge claims of their more fortunate countrymen by charging them with "crass materialism, sharp practices, and disregard for the country's traditional culture and spiritual values."<sup>74</sup> This alienation may in turn cause investment to be focused around pioneering growing points.<sup>75</sup>

Hirschman called growing, more advanced regions the "North" and backward regions the "South." Favorable effects of Northern growth on the South were called "trickling down" and unfavorable effects "polarization." These directly correspond to Myrdal's "spread" and "backwash" effects.<sup>76</sup> "The increase of Northern purchases and investments in the South" were considered the most important potential trickle-down effects, and followed if the economies of North and South were somewhat complementary. A second positive effect occurs if the North absorbs "some of the disguised unemployed of the South and thereby raise the marginal productivity of labor and per capita consumption levels of the South." However, if internal migration involves primarily the key technicians, managers, and the more enterprising young people of the South, very serious polarization may result. In addition, Northern competition may depress relatively

inefficient Southern manufacturing and export industries. Thirdly, if Northern industry develops products not produced in the South, the South may have to buy Northern manufactures, produced within tariff walls, instead of purchasing similar items that are available at lower prices from abroad.<sup>77</sup> Along with the loss of skill and initiative, much of the small amount of money capital the South accumulates will also probably move North.<sup>78</sup>

Notwithstanding the apparently great potential for polarization effects, Hirschman was confident that eventually trickle-down effects would make themselves felt. He saw three possibilities. If the North is largely dependent on the South for inputs to its own development, first, a rise in prices of Southern products would relatively quickly cause a rise in Southern production. A less satisfactory possibility is that a slowdown in Northern development may follow increasing costs of material and labor. An even worse situation may result if trickling-down is precluded because the North chooses not to procure most of its primary products from the South but imports them or develops its own. This would tend to retard the South.<sup>79</sup> However, as industrial expansion congests the North and is limited by an insufficient domestic market, trickle-down effects will spread to the South. In addition, like Myrdal, Hirschman thought political forces will tend to cause public investment in backward areas.<sup>80</sup>

Criticism and support of Hirschman's ideas closely parallel critiques of Myrdal's ideas.<sup>81</sup> The idea of circular and cumulative development,<sup>82</sup> polarization<sup>83</sup> and trickling-down effects<sup>84</sup> all receive support from empirical studies. Although there is some difficulty in interpreting the results of some studies, Hirschman's idea that

regional per capita incomes initially diverge then converge seems to represent reality.<sup>55</sup>

Hirschman's conception of the way regional development takes place in backward regions agrees with Myrdal's picture of increasing disparity between the advancing North and backward South. However, while Myrdal determined that development of a backward region cannot occur without Government assistance, Hirschman posited that trickling-down effects would eventually tend to predominate in the South, and convergence would ensue. Hirschman even called Myrdal's analysis "excessively dismal."<sup>56</sup> At the same time, Hirschman accepted an important place for Government intervention for those unusual and difficult cases when things fail to support development.

### Internal Colonialism

In addition to the less optimistic picture of development set forth by Myrdal, there is a body of literature known as "internal colonialism theory" that Hirschman might call excessively dismal. The backbone of this perspective is the idea that domination and subjection of one native group by another within a country causes regional economic backwardness.<sup>57</sup> Most often, adherents consider backward regions to be the internal colonies of developing urban centers or productive agricultural regions.<sup>58</sup> Beyond that, however, writers are seldom agreed on other basic aspects of the theory. Some writers emphasize cultural or social domination,<sup>59</sup> while others focus on "economic-political" subjection.<sup>60</sup> Stavenhagen even thought cultural

or ethnic differences change into class problems as the dominant cultural group takes control and capitalism takes over the regional economy.<sup>91</sup> With this in mind, the most comprehensive sketch of the socioeconomic features of the model was probably provided by Hechter.<sup>92</sup>

In Hechter's understanding, somehow modernization begins and spreads unevenly throughout a country. As a result of a lack of uniformity in that change, some groups of people advance more than others and the distribution of resources and power tend to favor an advanced, "core" group. The leading group tries to perpetuate its advantageous position, trying to obtain control of society so that life roles with higher status are assigned to its members. People from less advanced, "peripheral," groups are kept from those roles. This helps produce cultural differences between core and periphery groups. People eventually identify themselves with the potential roles they are allowed or expected to play. That identification is reinforced by visible cultural differences which are perpetuated by the core.<sup>93</sup>

The core develops into a diversified industrial region but the structure of development in peripheral regions is made to complement the core and depend on it. To the extent industrialization is allowed in the periphery it is very specialized and directed toward exports, making economic growth in peripheral regions very sensitive to price fluctuations in international markets. People of the core group tend to retain control of investment, credit, and income distribution decisions. Due to the development of economic dependence, wealth of the peripheral group remains below the wealth of the core. Regional economic inequality remains or even increases as interaction between the core and periphery increases. In time, the peripheral culture

tends to assert itself in opposition to the domination of the core, with political problems growing out of cultural differences.<sup>94</sup>

Although the theory seems to have the potential to provide a useful perspective on the retardants to economic growth, it is not formulated in a rigorous manner. Possibly because of its complex socio-politico-economic nature, it cannot be stated in a testable manner. As a result, the implied cause and effect relationships of these theoretical propositions remain to be verified. Unfortunately, most of the literature exhibits great oversimplification and almost overwhelming contradictions.<sup>95</sup> Hechter's work is an important contribution to a rigorous statement and verification of the internal colonialism hypothesis but much more remains to be done.<sup>96</sup>

The internal colonialism model predicts that as long as the periphery remains under the domination of the core it will remain underdeveloped. Interestingly, aspects of the internal colonial model seem to correspond quite well to the perspective of many minority nationalities incorporated within larger countries.

#### In Summary

As shown above, the understanding of how regional development takes place is by no means common. Some theories envision backward and developed regional economies converging, as time goes on, at some relatively high level. Theories of this type include the neoclassical, Heckscher-Ohlin and export base hypotheses. Other theories predict that development levels among regions of a country will diverge in the shorter term but converge in the longer term. These theories include

the growth pole hypothesis, and the ideas of Myrdal and Hirschman. Still another, the internal colonialism theory, pessimistically predicts continuing divergence of economic development levels among regions so that while some regions continue to grow others will be pushed further and further behind.

It seems obvious that our understanding of regional economic development is incomplete, but before we can improve our knowledge on the subject it is necessary to understand the way development has been perceived in the past. I hope that this short review helps those who are unfamiliar with development literature to gain a basic appreciation for the levels of understanding achieved thus far. I believe this work also points out the need for additional research in the field.

## Endnotes

<sup>1</sup> This note is not intended to discuss mathematical constructs or models of theories, except to the extent those models support or refute theoretical propositions and explain the way in which regions experience economic growth. Tools used for the study of regional economies, such as econometric models and input-output models, are not part of this study.

<sup>2</sup> For a concise treatment of the Heckscher-Ohlin theory, see Richard E. Caves, Trade and Economic Structure: Models and Methods (Cambridge, MA: Harvard UP, 1960) 23-44.

<sup>3</sup> Bertil Ohlin, Interregional and International Trade (Cambridge, MA: Harvard UP, 1957) 29; Caves, 28.

<sup>4</sup> Ohlin 151; John R. Moroney and James Walker, "Regional Test of the Heckscher-Ohlin Hypothesis," Journal of Political Economy 74 (Dec 1966): 573-86.

<sup>5</sup> Ohlin 149, 210.

<sup>6</sup> Moroney and Walker, 584.

<sup>7</sup> Ohlin 151, 227.

Smith tested a comprehensive Heckscher-Ohlin type model and found growth rates of income per worker in US regions related to relative growth rates of labor and capital. His work indirectly supported the assumption that capital moves between regions to find a higher return. He also suggested that eventually migrants were fully employed. Donald Mitchell Smith, "Neoclassical Growth Models and Regional Growth in the U.S.," Journal of Regional Science 15 (1975): 165-81.

Smith also showed that within a region, resources may be reallocated between agricultural and nonagricultural sectors. Donald Mitchell Smith, "Regional Growth: Interstate and Intersectoral Factor Reallocations," Review of Economics and Statistics 61 (1974): 353-9.

Savoie associated growth with fuller integration into the national economy and with skills and talents and, therefore, with educational and knowledge levels of citizens. Donald J. Savoie, "Courchene and Regional Development: Beyond the Neoclassical Approach," Canadian Journal of Regional Science 9 (1986): 75-76.

<sup>8</sup> Ohlin 170, 172.

<sup>9</sup> Ohlin 229; Moroney and Walker, 583.

<sup>10</sup> Ohlin 155-166, 227.

<sup>11</sup> Michael Steiner, "Contrasts in Regional Potentials: Some Aspects of Regional Economic Development," Papers of the Regional Science Association 61 (1987): 80.

<sup>12</sup> Rodrigue Tremblay, "The Regional Impact in Canada of Free Trade," Canadian Journal of Regional Science 8 (1985): 87.

<sup>13</sup> Export base theory is equivalent to "economic base" theory in the context of interregional multiplier analysis. See, for example: John Meyer, "Regional Economics: A Survey," American Economic Review 53 (1963): 30-31.

<sup>14</sup> Harry W. Richardson, Regional Growth Theory (New York: Wiley, 1973) 17.

<sup>15</sup> Important work on export base theory was done by Hildebrand and Mace, Duesenberry, Hoyt and Innis. See, for example: George Hildebrand and Arthur Mace Jr., "The Employment Multiplier in an Expanding Industrial Market: Los Angeles County, 1940-47," Review of



Economics and Statistics (Aug. 1950): 341-49; J. S. Duesenberry, "Some Aspects of the Theory of Economic Development," Explorations in Entrepreneurial History 3 (1950): 96-102; Homer Hoyt, "Homer Hoyt on the Development of the Economic Base Concept," Land Economics (May 1954): 182-6; Douglas C. North, "Location Theory and Regional Economic Growth," Journal of Political Economy 63 (1955): 247-48; Harold A. Innes, The Fur Trade in Canada (New Haven, CT: Yale UP, 1920); Problems of Staple Production in Canada (Toronto: U of Toronto P, 1933); The Cod Fishery: The Study of an International Economy (New Haven, CT: Yale UP, 1940); and with A. R. M. Lower, Settlement and the Forest and Mining Frontier (Toronto: Macmillan, 1935); M. L. Greenhut, "Needed - A Return to the Classics in Regional Economic Development Theory," Kyklos 19 (1966): 461-78.

<sup>16</sup> North's "Location Theory" is his seminal work on the subject. Others include "The Spatial and Interregional Framework of the U.S. Economy: An Historical Perspective," Papers and Proceedings of the Regional Science Association (1956): 201-9; "Agriculture in Regional Economic Growth," Journal of Farm Economics (Dec. 1959): 943-51; The Economic Growth of the United States: 1790 to 1860 (Englewood Cliffs, NJ: Prentice, 1961); Growth and Welfare in the American Past: A New Economic History (Englewood Cliffs, NJ: Prentice, 1966).

<sup>17</sup> North defines a "staple" as a chief commodity produced by a region. North, "Location Theory," 247.

<sup>18</sup> North, "Location Theory," 251-58. Borts produced some support for convergence of incomes among US regions but used aggregate production data and ignored the effect of industrial structure on regional incomes. G. H. Borts, "The Equalization of Returns and Regional Economic Growth," American Economic Review 50 (1960): 319-47.

Lande and Gordon used US data to test a neoclassical model at the industry level, looking for agglomerative industries. Their work relaxed the usual assumption of a single production function, homogeneous of degree one which had been made with earlier neoclassical models and incorporated assumptions of supply associated with growth poles. They concluded that forces supporting income convergence are present in some industries which are identifiable. Neoclassical predictions of convergence were upheld for ten of seventeen industries tested. Lande and Gordon concluded that their supply model explains aspects of the income growth behavior in regions of the US and accounts for neoclassical and agglomerative influences. Sectorial strengths of each of these influences determine whether convergent or divergent factors dominate in the aggregate. They decided that location preference and agglomerative effects helped explain the lack of convergence in some cases. Their results agreed with Morrison's study that suggests income differentials are not able to fully explain migration. Paul S. Lande and Peter Gordon, "Regional Growth in the United States: a Reexamination of the Neoclassical Model," Journal of Regional Science 17 (1977): 61-69; P. A. Morrison, "A Demographic Assessment of New Cities and Growth Centers Population Redistributive Strategies," Public Policy 21 (1973): 367-82.

<sup>19</sup> See, for example: G. H. Borts, "Equalization," 319-47; J. N. Tattersall, "Exports and Economic Growth: The Pacific Northwest 1880 to 1960," Papers and Proceedings of the Regional Science Association 9 (1962): 215-34; H. S. Perloff, E. S. Dunn, Jr., E. Lampard and R. Muth, Regions, Resources and Economic Growth (Baltimore: Johns Hopkins UP,

1960); H. S. Perloff and L. Wingo, "Natural Resource Endowment and Regional Economic Growth," in J. J. Spengler, ed. Natural Resources and Economic Growth (DC: 1961) 191-212; Bernard Malamud, "Regional Economic Growth and Decline: The Supply-Side Contribution," Annals of Regional Science 21 (July 1987): 1-20; World Development Report 1987 (New York: Oxford UP, 1987) ch. 5; L. K. Jha, "Do Outward-Oriented Policies Really Favor Growth?" Finance & Development (Dec 1988): 44-5; Sarath Rajapatirana, "Rejoinder," Finance & Development (Dec 1988): 45-6.

For an emphasis on frontier regions see: Lee Huskey, "The Hidden Dynamic in the Growth of Frontier Regions," Growth and Change 16 (Oct 1985): 43-55.

<sup>20</sup> Tiebout found that factors such as "business investment, government expenditures, and the volume of residential construction" in addition to exports affected regional income. In addition, he found the development of residentiary industry quite important in reducing costs of exports. C. M. Tiebout, "Exports and Regional Economic Growth," Journal of Political Economy 64 (1956) 161; Seymore Edwin Harris, International and Interregional Economics (New York: McGraw, 1957): 169.

<sup>21</sup> North, "Location Theory," 248.

<sup>22</sup> Richardson, Theory 17-8. The difficulty of defining and measuring exogenous income was illustrated in R. E. Bolton, Defense Purchases and Regional Growth (DC: Brookings, 1966) 48-9.

For an attempt to improve the economic base multiplier see: John Merrifield, "A Neoclassical Anatomy of the Economic Base Multiplier," Journal of Regional Science 27 (1987): 283-94.

<sup>23</sup> Bert Helmsing, "Dependency or Differentiation? Regions and Industrialization in Columbia," Tijdschrift voor Economische en Sociale Geografie 76 (1985): 130.

<sup>24</sup> Borts and Stein examined changes in economic relationships as regions developed and found that export base and regional differentials in wage levels exerted considerable and equal weight in explaining regional growth differences in the US. Both factors were held to be important since either may support investment expansion and regional economic growth. G. H. Borts and J. L. Stein, Economic Growth in a Free Market (New York: Columbia UP, 1964) 121, 132.

For other supporting works see, for example: J. R. P. Friedmann and W. Alonso, eds., Regional Development and Planning: A Reader (Cambridge, MA: MIT P, 1964); and Gabriel G. Manrique, "Foreign Export Orientation and Regional Growth in the U.S.," Growth and Change 18 (1987): 1-12.

<sup>25</sup> François Perroux, "Note on the Concept of 'Growth Poles,'" trans. by Linda Gates and Anne Marie McDermott, in McKee, Dean, and Leahay, Regional Economics, 94. Originally published as "Note sur la notion de 'pôle de croissance'," Matériaux pour une analyse de la croissance économique; Cahiers de l'Institut de Science Economique Appliquée, Serie D, 8 (1955).

Other writers on "growth poles" include T. Milhau, "La Théorie de la Croissance et L'Expansion Regionale," Economique Appliquée 9 (1956) 349-56; U. K. Hicks, F. G. Carnell, W. T. Newlyn, J. R. Hicks and A. H. Birch, Federalism and Economic Growth in Underdeveloped Countries (London: 1961) 77; W. H. Nicholls, "Industrialization, Factor Markets, and Agricultural Development," Journal of Political Economy 69 (1961):

319-40; H. Reguin, "Aspects Géographiques de la Polarisation," Tiers-Monde 4 (1963) 559-608.

<sup>26</sup> François Perroux, "Economic Space: Theory and Applications," Quarterly Journal of Economics 64 (Feb 1950): 90-7.

<sup>27</sup> Niles M. Hansen, "Development Pole Theory in a Regional Context," Kyklos 20 (1967), reprinted in McKee, Dean, and Leahy, Regional Economics 124.

<sup>28</sup> Hansen, "Development Pole Theory," 125-26.

Hansen summarized three basic characteristics of a propulsive industry or firm that qualify it as a growth pole: "First, it must be relatively large in order to assume that it will generate sufficient direct and potentially indirect effects to have a significant impact on the economy; second, it must be a relatively fast-growing sector; and third, the quantity and intensity of its interrelations with other sectors should be important so that a large number of induced effects will in fact be transmitted. Hansen, "Development Pole Theory" 129.

<sup>29</sup> Hansen, "Development Pole Theory," 127.

<sup>30</sup> Gunnar Myrdal, Economic Theory and Under-Developed Regions (London, Gt. Brit.: Duckworth, 1957) 133.

<sup>31</sup> Albert O. Hirschman, The Strategy of Economic Development (New Haven, CT: Yale UP, 1958) 183-201.

<sup>32</sup> For growth poles associated with urban-industrial centers see: V. W. Ruttan, "The Impact of Urban-Industrial Development on Agriculture in the Tennessee Valley and the Southeast," Journal of Farm Economics 37 (1955) 56; and W. W. Rostow, Views from the Seventh Floor (New York: Harper, 1964) 123-4.

For the broader view see: John Rembert Peter Friedmann, Regional Development Policy: A Case Study of Venezuela (Cambridge, MA: MIT P, 1966) 28-37.

<sup>33</sup> Leland S. Burns, "Regional Economic Integration and National Economic Growth," Regional Studies 21 (Aug 1987): 327-39.

<sup>34</sup> For disagreement on the impact of large industry compare: Political and Economic Planning, Regional Development in the European Economic Community (London: Political and Economic Planning, 1962) 51; Philippe Aydalot, "Note sur les économies externes et quelques notions connexes," Revue économique 16 (Nov 1965): 967-68, referenced in Hansen, "Development Pole Theory," 131.

For support of cumulative growth and spread effects see notes 51 and 53.

<sup>35</sup> J. C. Stabler, "Exports and Evolution: The Process of Regional Change," Land Economics 44 (1968): 12.

Ideas on stages of development go back to Saint-Simon, and many German writers. List believed that each country went through five phases of development: savagery; pastoral life; agriculture; agriculture and manufactures; agriculture, manufactures, and trade. Hildebrand emphasized stages of exchange relations: "natural" or barter economy, money economy, and credit economy. Bücher associated stages with the locus of economic transactions: independent household economy, producing only for one's own household; town economy, with specialized production and direct exchange of products between producers and consumers; and a national socioeconomic system, including production for wholesale and a wide distribution of goods. For example see: Henri Saint-Simon, Oeuvres de Saint-Simon et d'Enfantin, 47 vols. (Aalen: Otto Zeller, 1963); Friedrich List, The National System of Political

Economy, S. S. Lloyd (trans.) ([1841]; New York: Longmans, 1928); Bruno Hildebrand, "Natural- Geld- und Kreditwirtschaft," in Jahrbücher für Nationalökonomie und Statistik, 2 (1864) 1-24; Karl Bücher, Die Entstehung der Volkswirtschaft (1893).

Hoover thought development began with a move by societies out of self-sufficient subsistence agriculture, through agricultural and mineral-based industries, to a reliance on industry and tertiary activities oriented to export markets. Fisher held similar ideas. Edgar M. Hoover, Location Theory and the Shoe and Leather Industries (Cambridge, MA: Harvard UP, 1937) 284-5; The Location of Economic Activity (New York: McGraw, 1948) 187-96; Edgar M. Hoover and Joseph L. Fisher, "Research in Regional Economic Growth," Problems in the Study of Economic Growth (New York: Natl Bur of Econ Research, 1949) 175-88; J. L. Fisher, "Concepts in Regional Economic Development," Papers and Proceedings of the Regional Sciences Association 1 (1955): 3-14.

For population changes associated with stages of development see: William Alonso, "Five Bell Shapes in Development," Papers of the Regional Science Association 45 (1980): 7-11; T. Miyao, "Rural and Urban Population Changes and the Stages of Economic Development: A Unified Approach," Environment and Planning 15 (1983): 1161-74.

Coffey and Polèse envisioned regional growth taking place in four stages. First, local entrepreneurship emerges with the creation of local firms. Second, local firms expand and grow beyond the region. This expansion is founded on locational advantages and, importantly, the comparative advantages the region developed because of its entrepreneurs and other inhabitants. This must be fed by entrepreneurial capacity and knowledge. In stage three, as extraregional branches of the region's firms grow, local control of enterprises must be maintained or increased. In stage four, local firms, with their labor forces and entrepreneurial class, will provide a regional economic structure that is able to adapt itself and the output of the economy as necessary. This optimistic picture relies on local involvement. But if the first impetus to growth is from external investors and entrepreneurs, investment will tend to concentrate in primary resource extraction, limiting human development. Any firms controlled by local entrepreneurs able to expand into distant markets would be purchased by external investors. There would be a continual outmigration of valuable human resources and the economic structure produced would depend on foreign owners and exports. William J. Coffey, and Mario Polèse, "The Concept of Local Development: A Stages Model of Endogenous Regional Growth," Papers of the Regional Science Association 55 (1984): 1-12.

<sup>36</sup> W. W. Rostow in collaboration with Richard W. Hatch, An American Policy in Asia (New York: Technology P of MIT and Wiley, 1955) 13-4; "The Take-Off Into Self-Sustained Growth," Economic Journal 66 (1956): 25-48; "The Stages of Economic Growth," Economic History Review 2nd ser. 12 (1959): 1-16; The Stages of Economic Growth: A Non-Communist Manifesto, 2nd ed. (Cambridge, UK: U Printing House, 1971). In An American Policy in Asia and "The Take-Off Into Self-Sustained Growth" Rostow spoke of a traditional society and three stages. With the publication of "The Stages of Economic Growth" he seems to have clarified, if not expanded, his definition of stages, designating five.

In note 3, of "The Take-Off into Self-Sustained Growth" and on page 1 of the The Stages of Economic Growth, Rostow stated his concept of growth applies to regions of countries as well as entire countries.

<sup>37</sup> Rostow, Stages 71.

<sup>38</sup> Rostow, Stages 8-9

<sup>39</sup> Rostow, Stages 39. Although the quote specifically refers to national income, based on page 1 of this book, Rostow seems to intend that the same percentage be applied to regions. Rostow also noted on this page that here "'manufacturing' is taken to include the processing of agricultural products or raw materials by modern methods..."

<sup>40</sup> Rostow, Stages 71.

<sup>41</sup> Rostow, Stages 59.

<sup>42</sup> Rostow, Stages 70-4. Booth's research suggested that after regions undergo long periods of rapid economic growth they tend to experience low or negative growth for some time. This period is eventually followed by economic recovery and an increasing rate of economic activity. This process is said to be part of a long wave of uneven regional growth. Douglas E. Booth, "Long Waves and Uneven Growth," Southern Economic Journal 53 (Oct 1986): 448-60.

<sup>43</sup> Cairncross criticized Rostow for trying to build a model with a few "all-embracing variables," since patterns of growth seem to vary so widely. Hagen and Higgins disagreed with Cairncross, considering it important to seek patterns of growth. Hagen argued that the important thing is not whether Rostow's ideas "ignore some complexities of reality, but whether they are congruent with reality in respects which make them useful for its analysis." Meier considered Rostow's model "more substantial ... more analytical and related to a wider range of issues" that help "isolate the strategic factors which make for change" than presented by any previous stage theories. A. K. Cairncross, "Essays in Bibliography and Criticism, The Stages of Economic Growth," Economic History Review, Second Series, 13 (1961): 451; Everett E. Hagen, On the Theory of Social Change: How Economic Growth Begins (Homewood, IL: Dorsey P, 1962) 514; B. Higgins, "Review of On the Theory of Social Change: How Economic Growth Begins, by Everett E. Hagen," Journal of Political Economy 72 (1964): 627-30; Gerald M. Meier, Leading Issues in Development Economics, (New York, Oxford UP, 1964) 25.

The testability of individual aspects of Rostow's theory has been the subject of dispute. For example, Hagen agreed that the "upward surge in the rate of investment (and presumably also the rate of growth) during a crucial period of takeoff" proposed by Rostow identified a specific quantifiable criterion but found other stages difficult to distinguish. Cairncross and others strongly criticized the lack of definition of stages. Everett E. Hagen, The Economics of Development, 3rd ed. (Homewood, IL: Irwin, 1980) 82; Cairncross, "Essays" 451, 456; Stephen Enke, Economics for Development, (Englewood Cliffs: Prentice, 1964) 201-3; Ian Drummond, "Review of 'The Stages of Economic Growth' by W. W. Rostow," Canadian Journal of Economics and Political Science, 27 (1961): 113; Simon Kuznets, "Notes on the Take-Off," W. W. Rostow, ed., The Economics of Take-Off into Sustained Growth, Proceedings of a Conference held by the International Economic Association (New York: St Martin's, 1963) 27, 37, 39; Habakkuk, "Review" 602; Hagen, "Growth Begins" 517-19.

For those who criticize the lack of specific, identifiable links between stages see for example: Cairncross, "Essays" 451; Paul A. Baran and E. J. Hobsbawm, "The Stages of Economic Growth," Kyklos 14 (1961): 236; Drummond, "Review" 113; Enke, Development 202-03; Goran Ohlin, "Reflections on the Rostow Doctrine," Economic Development and Cultural Change 9 (1961): 649; J. H. Habakkuk, "Review of The Stages of Economic Growth by W. W. Rostow," Economic Journal 71 (1961): 601.

Critics have also been unable to identify a regular pattern of ten or twenty year periods in which investment rates rose quickly to support take-off of developed countries. Cairncross, "Essays" 454-56; Hagan, "Economic Structure and Economic Growth: A Survey of Areas in Which Research is Needed," The Comparative Study of Economic Growth and Structure (New York: Natl Bur of Econ Research, 1959) 132; Hagan, "Growth Begins" 519-20; Kuznets, "Notes" 35; North, "A Note on Professor Rostow's 'Take-Off' Into Self-Sustained Economic Growth," Manchester School of Economic and Social Studies 26 (1958) 75; Ohlin, "Reflections" 649-50.

<sup>14</sup> The overlap is shown on the "Chart of stages of economic growth in selected countries." in Rostow, Stages xx.

<sup>15</sup> For example see, Rostow, Stages 39-40.

<sup>16</sup> Leading sectors of an economy are those productive entities initially in the primary sector and later in other sectors which experience high growth rates and cause growth to spread to the rest of the economy. Everett E. Hagen, "Economic Structure and Economic Growth: A Survey of Areas in Which Research is Needed," The Comparative Study of Economic Growth and Structure (New York: Natl Bur of Econ Research, 1959) 135; B. F. Hoselitz, "On Historical Comparisons in the Study of Economic Growth," The Comparative Study of Economic Growth and Structure (New York: Natl Bur of Econ Research, 1959) 154-55; B. F. Johnston and J. W. Mellor, "The Role of Agriculture in Economic Development," American Economic Review, 51 (1961): 566-93; Meier, Leading 266-72; J. Meynaud, Social Change and Economic Development, (Paris: UNESCO, 1963) 9-22.

<sup>17</sup> Rostow, Stages 64. Myrdal, Hirschman and Liebenstein have also emphasized the importance of human initiative. For example see, Myrdal, Theory 27; Hirschman, Strategy 7-20; Harvey Leibenstein, "X-efficiency: From Concept to Theory," Challenge (Sept-Oct 1979): 13-22.

<sup>18</sup> Some hold that Rostow's ideas are not applicable generally but apply to a certain group of economies. For example see: H. B. Chenery, "Patterns of Industrial Growth," American Economic Review 50 (1960): 615, 651; Enke, Development 204-5; J. R. Hicks, Essays in World Economics (Oxford, Gt. Brit.: Clarendon, 1959) 182-3; B. F. Hoselitz, "Patterns of Economic Growth," Canadian Journal of Economics & Political Science 21 (1955): 417-8; Kuznets, "The State as a Unit in Study of Economic Growth," Journal of Economic History 11 (1951): 29-31; "International Differences in Income Levels: Reflections on Their Causes," Economic Development and Cultural Change 2 (1953-54): 14-6; North, "A Note" 75; V. W. Ruttan, "Discussion: The Location of Economic Activity," Journal of Farm Economics 41 (1959): 952-4.

Fairbank, et al. posit two basic patterns of industrialization and "intermediate cases in which intricate interplays of exogenous and endogenous factors produced disequilibrating forces." They found Rostow's model fit West European countries and call it one basic

pattern. The other pattern has "five phases characterized by (1) traditional equilibrium, (2) the rise of disequilibrating forces, (3) gestation, (4) breakthrough or ... take-off, and (5) self-sustaining growth." J. K. Fairbank, A. Eckstein, and L. S. Yang, "Economic Change in Early Modern China: An Analytic Framework," Economic Development and Cultural Change 9 (1960): 1-2.

The second basic pattern of Fairbank, et al. is associated with many of today's less developed countries. The significant difference is that while the forces which move the traditional society in Rostow's model are primarily endogenous, the disequilibrating forces in the second pattern are usually exogenous. Fairbank, et al. found their alternate pattern fit the experience of India, China, and most other far Eastern areas better than Rostow's model. Fairbank, Eckstein, Yang, 2-25.

<sup>49</sup> Others include: Hirschman, Economic Development; J. R. Hicks, Essays. The major works of Myrdal include: Gunnar Myrdal, Development and Underdevelopment: A Note on the Mechanism of National and International Economic Inequality (Cairo, Bank of Egypt, 1956); Rich Lands and Poor: the Road to World Prosperity (New York: Harper, 1957); Theory.

<sup>50</sup> Myrdal, Theory 11-2.

<sup>51</sup> Myrdal, Theory 12-3.

<sup>52</sup> Myrdal, Theory 26.

<sup>53</sup> Examples of those economies were: "a working population trained in various crafts, easy communications, the feeling of growth and elbow room and the spirit of new enterprise." Myrdal, Theory 26-7.

<sup>54</sup> Typical backwash effects include the loss of more skilled and enterprising workers and their savings to the more dynamic regions. Additionally, with free trade, lower priced goods and services from advanced regions, benefiting from increasing returns, tend to bankrupt producers in less developed regions. Backward areas tend to be unable to develop and maintain social overhead most beneficial to their internal development. For example, most roads may not be maintained and railways are usually built to meet national demands, not requirements of the regions. Growth in health and educational services is also retarded. Myrdal, Theory 27-30.

<sup>55</sup> Spread effects can include greater demand for a region's agricultural products when the region is near an expansion center. This can stimulate it to take advantage of new technology. More distant regions with a raw materials production advantage may gain by supplying growing industrial centers. If sufficient numbers of people are employed in providing those inputs, consumer goods industries in those distant places could be stimulated. If backwash effects can be overcome, cumulative causation may cause these places to become "new centers of self-sustained expansion." Myrdal, Theory 31.

<sup>56</sup> A high average level of development is required for better transport and communications, improved education, and a greater intellectual climate to develop and support the spread of economic growth. Myrdal, Theory 31.

<sup>57</sup> Myrdal lauded the absence of free markets in the developed countries but failed to mention the hindrances to effective market operation in less developed countries where he condemned the "free play" of the market. Myrdal, Theory 39-40, 49.

<sup>55</sup> Perloff and Wingo, "Natural Resource Endowment" 106; M. M. Chisholm, "Tendencies in Agricultural Specialization and Regional Concentration of Industry," Papers of the Regional Science Association, European Congress 10 (1962): 159; A. A. L. Caesar, "Planning and the Geography of Great Britain," Advancement of Science 21 (1964) 238; Irene Nicholson, The X in Mexico: Growth within Tradition (London: Faber, 1965) 164-9; A. Sturathal, "Economic Development, Income Distribution, and Capital Formation in Mexico," Journal of Political Economy 63 (1955): 200; A. K. Cairncross, "Research on Comparative Economic Growth," The Comparative Study of Economic Growth and Structure (New York: Natl Bur of Econ Research, 1959) 109; W. Baer, "Regional Inequality and Economic Growth in Brazil," Economic Development and Cultural Change 12 (1964): 269; F. R. Brandenberg, The Making of Modern Mexico (Englewood Cliffs, NJ: Prentice, 1964) 208-09; R. J. Wonnacott, "Wage Levels and Employment Structure in United States Regions: A Free Trade Precedent," Journal of Political Economy 72 (1964): 418; A. Pred, "Industrialization, Initial Advantage, and American Metropolitan Growth," Geographical Review 55 (1965): 160-66; Helmsing, "Dependency," 130; Yuji Kubo, "Urban Concentration and Rural Growth: A Two-Sector Analysis," Journal of Regional Science 26 (1986): 579-93.

Malecki noted the importance of size of the economic system and access to markets for the spread of technology that supports development. Edward J. Malecki, "Technology and Regional Development: A Survey," International Regional Science Review 8 (1983): 95-96.

<sup>59</sup> For corroboration of backwash effects see for example: S. B. Clough and C. Livi, "Economic Growth in Italy: An Analysis of the Uneven Development of North and South," Journal of Economic History 16 (1956): 336; J. R. P. Friedmann, "Regional Planning: A Problem in Spatial Integration," Papers and Proceedings of the Regional Science Association 5 (1959): 174; R. S. Eckhaus, "The North-South Differential in Italian Economic Development," Journal of Economic History 21 (1961): 314, 317; Celso Furtado, The Economic Growth of Brazil. A Survey from Colonial to Modern Times, trans. Ricardo W. de Aguiar and Eric Charles Drysdale (Berkeley: U California P, 1963) 264-5; R. B. Hughes, "Interregional Income Differences; Self Perpetuation," Southern Economic Journal 28 (1961): 41-5; J. R. Lasuen, "Regional Income Inequalities and the Problems of Growth in Spain," Papers of the Regional Science Association, European Congress 8 (1962): 169-91; Stefan Hyman Robock, Brazil's Developing Northeast: A Study of Regional Planning and Foreign Aid (DC: Brookings, 1963) 108; Baer, "Growth in Brazil" 268-85; M. C. Verburg, "The Gent-Terneuzen Developmental Axis in the Perspective of the European Economic Community," Tijdschrift voor Economische en Sociale Geografie 55 (1964): 144; Jeffrey Williamson, "Regional Inequality and the Process of National Development: A Description of the Patterns," Economic Development and Cultural Change 4 (1965): 6-7; J. B. Parr, "Outmigration and the Depressed Area Problem," Land Economics 42 (1966): 152-4; J. R. Lewis and A. M. Williams, "Regional Uneven Development on the European Periphery: The Case of Portugal, 1950-1978," Tijdschrift voor Economische en Sociale Geografie 72 (1981): 81-98; E. H. Hunt, "Industrialization and Regional Inequality: Wages in Britain, 1760-1911," Journal of Economic History 46 (Dec 1986): 55-57.



<sup>60</sup> Lasuch, "Regional Income Inequality" 177; Luis Suarez-Villa, "Center-Down Development in Perspective: Labor Absorption and Interdependence in Brazilian Regional Industries," Papers of the Regional Science Association 53 (1983): 43-58; G. L. Gaile, "The Spread-Backwash Concept," Regional Studies 14 (1980): 20.

While studying more developed countries it was found that development spreads as industry moves away from the initial growth poles to locate near available labor, raw materials, or markets. G. E. McLaughlin and S. Robock, "Why Industry Moves South," National Planning Association, Committee of the South, 3 (1949); J. V. Sickle, "The Southeast: A Case Study in Delayed Industrialization," American Economic Review 41 (1951): 387; D. E. Keeble, "Industrial Migration from North-West London, 1940-1964," Urban Studies 2 (1965): 15-32; G. C. Cameron and B. D. Clark, "Industrial Movement and the Regional Problem," University of Glasgow Social and Economic Studies, Occasional Papers 5 (1966).

Positive impact of government investment in road infrastructure is verified in U. Blum, "Effects of Transportation Investments on Regional Growth: A Theoretical and Empirical Investigation," Papers of the Regional Science Association 49 (1982): 177.

For a view that the innovative potential of economic centers tends to leave them see: Peter Nijkamp, "Long Waves or Catastrophes in Regional Development," Socio-economic Planning Sciences 16 (1982): 263.

<sup>61</sup> For example, some studies about Brazil disagree on whether the disparity between regional per capita incomes have been decreasing or widening. However, Robock casts doubt on the divergence suggested by Furtado due to the method of analysis applied in the study. Increasing disparities do seem to have occurred in Italy, Mexico and Uganda. The stage of development of those three countries and the periods studied do not contradict Hirschman but seem to fall within his theoretical framework. Wage levels and regional per capita incomes do seem to have converged in the United States. These and other studies can be understood to support Hirschman's idea of increasing divergence in early development changing to convergence in more advanced development. There is also some evidence that the larger the geographic size of a country, the greater regional inequality during any point of development.

For analyses in which disparities appear to grow wider see, for example, Baer "Growth in Brazil" 268-85; Celso Furtado, Conselho de Desenvolvimento do Nordeste, A Policy for the Economic Development of the Northeast, (Rio de Janeiro, 1959) reproduced in part and discussed in Robock, Brazil's Developing Northeast 106-12; Clough and Livi, "Economic Growth" 335; Sturmthal, "Economic Development," 201; Elkan, "Regional Disparities in the Incidence of Taxation in Uganda," Review of Economic Studies 26 (1959) 137.

For support of convergence see, for example, Robock, Brazil's Developing Northeast 33-34, 45-48; F. Arcangeli, C. Borzaga and S. Goglio, "Patterns of Peripheral Development in Italian Regions, 1964-1977," Papers of the Regional Science Association 44 (1980): 19-34; William J. Baumol, "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show," American Economic Review 76 (Dec 1986): 1072-85; William J. Baumol and Eduard N. Wolf, "Productivity Growth, Convergence, and Welfare: Reply," American Economic Review 78 (1988): 1155-59.

For studies that support initial divergence and then convergence see: R. A. Easterlin, "Long Term Regional Income Changes: Some Suggested Factors," Papers and Proceedings of the Regional Sciences Association 4 (1958): 313-25; "Interregional Differences in Per Capita Income, Population, and Total Income, 1840-1950," in National Bureau of Economic Research, Conference on Research in Income and Wealth, Trends in the American Economy in the Nineteenth Century (Princeton: Princeton UP, 1960) 73-140; J. L. Fulmer, "Factors Influencing State Per Capita Income Differentials," Southern Economic Journal 16 (1950): 273; Sickle, "The Southeast" 389; E. Smolensky, "Industrialization and Income Inequality - Recent United States Experience," Papers and Proceedings of the Regional Science Association 7 (1961): 68; Wonnacott, "Wage Levels" 414-9; Bela Balassa, The Theory of Economic Integration (Homewood, Ill.: Irwin, 1961) 201; Williamson, "Regional Inequality," 1-84; William C. Wheaton and Hisanobu Shishido, "Urban Concentration, Agglomeration Economies, and the Level of Economic Development," Economic Development and Cultural Change 30 (1981): 30; Frank Giarrantani and Soeroso, "A Neoclassical Model of Regional Growth in Indonesia," Journal of Regional Science 25 (1985): 373-82.

A recent study by Burns found convergence but determined that rapid per capita income growth inhibited the equalization of income and the pace of spatial integration. Burns, "Integration," 337-38.

For comments on size, see: Williamson, "Regional Inequality," 15.

<sup>62</sup> Jose da Silva Costa, Richard W. Ellson, and Randolph C. Martin, "Public Capital, Regional Output, and Development: Some Empirical Evidence," Journal of Regional Science 27 (1987): 419-37.

<sup>63</sup> Salvatore found the free market beneficial, not harmful to development. Dominick Salvatore, "The Operation of the Market Mechanism and Regional Inequality," Kyklos 25 (1972): 535-6.

<sup>64</sup> Myrdal, Theory.

<sup>65</sup> Albert O. Hirschman, "Investment Policies and 'Dualism' in Underdeveloped Countries," American Economic Review 47 (Sept 1957): 350-70.

<sup>66</sup> H. W. Singer, "Economic Progress in Underdeveloped Countries," Social Research 16 (Mar 1949): 5.

<sup>67</sup> Hirschman, Economic Development 5.

<sup>68</sup> Hirschman, Economic Development 183.

<sup>69</sup> Hirschman, Economic Development 5.

<sup>70</sup> Hirschman, Economic Development 183.

<sup>71</sup> One cause is attributed to investors who overestimate benefits to be gained by exhausting opportunities around favored growth poles, eschewing more profitable investments available elsewhere. Hirschman, Economic Development 184-5.

<sup>72</sup> Hirschman, Economic Development 185.

<sup>73</sup> Hirschman, Economic Development 186.

<sup>74</sup> The advancing of such charges against minority groups are often pursued with enjoyment but entrepreneurs from the majority group may also be attacked and may become "minorities in their own country." Hirschman gave the example of inhabitants of Antioquia province in Columbia. J. J. Parsons, Antioqueño Colonization in Western Columbia (Berkeley, 1949) 62. Hirschman, Economic Development 186.

<sup>75</sup> Hirschman, Economic Development 186-87.

<sup>76</sup> Hirschman, Economic Development 187.

<sup>77</sup> Hirschman, Economic Development 188.

- 78 Hirschman, Economic Development 189.  
 79 Hirschman, Economic Development 189.  
 80 Hirschman, Economic Development 190-98.  
 81 For example see: D. E. Keeble, "Models of Economic Development," in Richard J. Chorley and Peter Haggett, eds., Socio-Economic Models In Geography (1967; London, UK: Methuen, 1969) 261-264; Salvatore, "Operation of the Market Mechanism."  
 82 See note 55.  
 83 See note 59.  
 84 See note 60.  
 85 See note 61.  
 86 Hirschman, Economic Development 187, n. 5a.  
 87 Gilbert G. Gonz les, "A Critique of the Internal Colony Model," Latin American Perspective 1 (1974): 154; Norma Beatriz Chaloult and Yves Chaloult, "The Internal Colonialism Concept: Methodological Considerations," Social and Economic Studies 26 (1979): 86.

Internal colonialism is sometimes said to be the remnant of foreign domination. Pablo Gonz les-Casanova, "Internal Colonialism and National Development," in Irving L. Horowitz, Josue de Castro and John Gerassi, eds. Latin American Radicalism, (New York: Vintage, 1969) 7, 136.

88 Rodolfo Stavenhagen, "Seven Fallacies about Latin America," Latin America: Reform or Revolution? eds. James Petras and Maurice Zeitlin (Greenwich, CT: Fawcett, 1968) 13-31.

Hazell and Slade found that the strongest growth effect linkages from agriculture come from large farms. Therefore, it seems it may be the increased efficiency associated with size that gives large farms the opportunity to advance faster than smaller peripheral areas. Peter Hazell and Roger Slade, "Regional Growth Linkages from Agriculture: A Reply," Journal of Development Studies 23 (Jan 1987): 290-4.

89 Gonzales thought emphasis on ethnic heterogeneity was carried to such an extreme by Bailey and Flores that they had "turned Marxist materialism on its head" and argued that "(racism) has been the generating force in the oppression of non-white peoples." Others did not find "racial-cultural heterogeneity ... relevant." Havens and Flinn even felt that exploiters and exploited were not necessarily from different racial or cultural groups. Gonz les-Casanova, "Internal Colonialism," 7, 130-1; Julio Cotler, "The Mechanics of Internal Domination and Social Change in Peru," Masses in Latin America ed. Irving L. Horowitz (New York: Oxford UP, 1970) 407-44; Ronald Bailey, "Economic Aspects of the Black Internal Colony," in Frank Bonilla and Robert Girling, eds., Structure of Dependency (Stanford, CA: Institute of Political Studies, 1973) 161-88; Guillermo V. Flores and Ronald Bailey, "Internal Colonialism and Racial Minorities in the U.S.: An Overview," in Bonilla and Girling, 149-60; Guillermo V. Flores, "Race and Culture in the Internal Colony: Keeping the Chicano in His Place," in Bonilla and Girling, 189-223; Gonzales, "A Critique," 159; Yves Chaloult, "Regional Differentials and Role of the State: Economic-Political Relationships Between the Northeast and Southeast of Brazil," diss., Cornell U, 1976, 58; E. A. Havens and W. L. Flinn, Internal Colonialism and Structural Changes in Colombia, (New York: Praeger, 1970) 10.

<sup>90</sup> Chaloult and Chaloult, "The Internal Colonialism Concept," 87; A. Lipietz, "Inter-Regional Polarisation and the Tertiarisation of Society," Papers of the Regional Science Association 44 (1980): 3-17.

<sup>91</sup> Rodolfo Stavenhagen, "Classes, colonialism, Accumulation," Comparative Perspectives on Stratification: Mexico, Great Britain, Japan ed. Joseph A. Kahl (Boston: Little, 1968) 57.

<sup>92</sup> Michael Hechter, Internal Colonialism: The Celtic Fringe in British National Development, 1536-1966 (Berkeley: U of California P, 1975) 9-10.

<sup>93</sup> Hechter, Internal Colonialism 9.

<sup>94</sup> Hechter, Internal Colonialism 9-10.

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<sup>95</sup> Chaloult, "Regional Differentials," 52-3; Fernando Henrique Cardoso, "Dependency and Development in Latin America," New Left Review 74 (1972): 83-95; Helmsing, "Dependency," 131.

<sup>96</sup> Hechter, Internal Colonialism.

## Selected Bibliography

List of Journal Abbreviations

<u>ACEH</u>	Approaches to Canadian Economic History
<u>ARS</u>	Annals of Regional Science
<u>CJRS</u>	Canadian Journal of Regional Science
<u>EDCC</u>	Economic Development and Cultural Change
<u>EG</u>	Economic Geography
<u>EJ</u>	Economic Journal
<u>EP</u>	Environment and Planning
<u>GA</u>	Geographical Analysis
<u>GC</u>	Growth and Change
<u>IRSR</u>	International Regional Science Review
<u>JDS</u>	Journal of Development Studies
<u>JEH</u>	Journal of Economic History
<u>JPE</u>	Journal of Political Economy
<u>JRS</u>	Journal of Regional Science
<u>JUE</u>	Journal of Urban Economics
<u>K</u>	Kyklos
<u>LE</u>	Land Economics
<u>MSESS</u>	Manchester School of Economic and Social Studies
<u>PDR</u>	Pakistan Development Review
<u>PRSA</u>	Papers of the Regional Science Association
<u>RE</u>	Regional Economics
<u>RES</u>	Review of Economics and Statistics
<u>RS</u>	Regional Studies
<u>RSE</u>	Review of Social Economy
<u>RSUE</u>	Regional Science and Urban Economics
<u>SEJ</u>	Southern Economic Journal
<u>TSEG</u>	Tijdschrift voor Economische en Sociale Geografie

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